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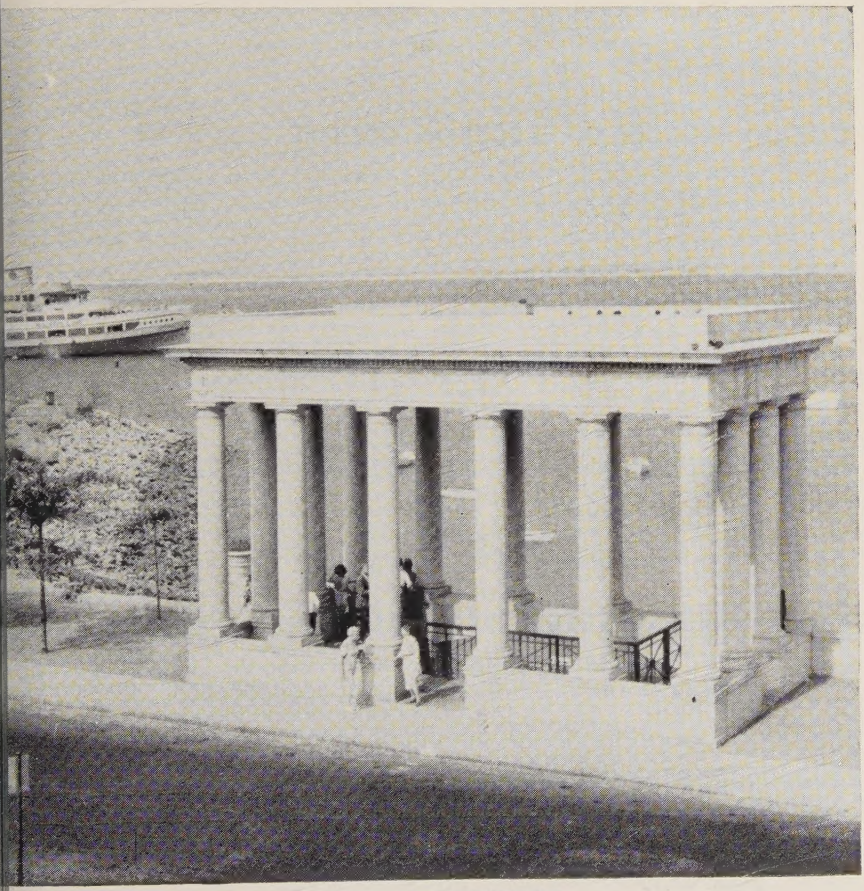

PLYMOUTH ROCK MONUMENT

Vol. 39 No. 2

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"The Voice of the Engineer"

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Published Four Times a Year at Mount Morris, Illinois

AUGUST 1954

The American Association of Engineers

8 South Michigan Avenue, Chicago 3, Ill.

lume 39 Number 2

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1954-1955

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M. E. McIVER, Editor

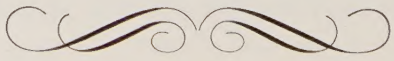
ican Association of Engineers assumes no responsibility for statements made or opinions expressed by contributors of articles published in Professoinal Engineer.

ication pending for transfer of second class entry from the post office at Chicago, Illinois, to post office at Mount Morris. Acceptance for mailing at the special rate of postage provided in section 1103, Act of October, 1917, authorized August 9, 1918. Subscription price, U.S., .00 a year; Canada, $1.50; foreign, $2.00. Printed in U.S.A.

Want to be an Executive Engineer!

Industry bids for men with executive experience and exhibits a willingness to train men with executive potentialities for responsible positions. Judging from our experience and knowledge in the field of personnel work, these are some of the things that industry apparently considers essential in an employee destined for executive rank:

- *Sound training in fundamentals.*
- *Knowledge of the cost of engineering operations and an appreciation of the relation of that expense to the profit possibilities in an entire enterprise.*
- *A personality that can make an harmonious and effective unit of the engineering department by control and leadership of its personnel, and at the same time make it function smoothly with other departments.*
- *Poise and tact and force that contribute to authority, so that an engineer may be spokesman for all technological personnel in the most important company conferences and in negotiation with outside agencies where technology is the paramount issue.*



Vocational Guidance in Engineering

Progress report of the Association's Committee on Vocational Guidance and Engineering Education. Everett C. Shuman, Chairman, Col. Walter R. Jeffrey, Dr. H. A. Wagner, M. P. McGirr, and M. E. McIver, Committee members.

SERIOUS overcrowding of the vocational fields of cowboys, firemen, policemen, railway enginemen, and space cadets would inevitably result if every small boy adhered to his original choice of occupations. Scarcely any American youngster reaches the age of five without having announced his intention of entering one of these alluring vocations. The appeal of activity, excitement, and perhaps of resplendent uniforms undoubtedly explains these almost universal occupational aspirations of the very young. After this first enthusiasm abated, the vocational interests of American youths were prone to lie dormant through the high school period, and even through college, until public interest in scientific vocational guidance burgeoned in the "thirties". During the first quarter of the 20th Century high school students selected subjects from the curricula quite casually (except those who had to meet certain college entrance requirements) without evidencing intelligent planning for any chosen life work. Among college students there was a drift, rather than an intelligent movement, into the professions, and there was no apparent direction of activities in junior or senior high schools for any except unusual students.

Progressive educators protested this *laissez faire* attitude for many years before the schools showed any willingness to accept responsibility for vocational guidance. Few teachers were equipped for the work, and only in comparatively recent years have the universities offered practical training to those who wished to enter this field. Manuals, textbooks, and standardized tests, adapted to use in high schools by teachers and students were unavailable. Industry recognized the need of sound aptitude tests before the schools understood the value of such tools, and deserves much credit for development of these essential guidance tools.

During the late twenties vocational and pre-vocational subjects were introduced widely into high school curricula. The junior high movement, developing after World War I, caused educators to initiate "broadening and finding" courses designed to give students a survey of possible vocations and an insight into the requirements of each. Counseling and guidance programs were instituted in senior high schools in the larger cities.

When American Association of Engineers (in 1933) sponsored publication of "Vocational Guidance in Engineering Lines," planned, compiled and edited by the distinguished bridge engineer and engineering teacher Dr. J. A. L. Waddell, all these favorable developments were embryonic. This book was the Association's response to a well recognized and critical need. For years the Association had been overwhelmed and embarrassed by requests for guidance material—requests from educators, civic organizations, and parents of boys who wanted to train for careers in engineering. "Vocational Guidance in Engineering Lines" was not the kind of book that would have been written by a psychologist or the head of an industrial training department. Every chapter was written by a man preeminent in a particular branch of engineering. As informally and directly as possible each told of the nature of his work, aerial photographic surveying, aeronautical engineering, bridge engineering, dam engineering, geological and highway engineering, hydraulics, sanitation, valuation and water-supply engineering, to mention only a few specialties discussed. The authors described the kind of training requisite for each branch of engineering, the types of positions available from routine jobs to those involving the highest degree of responsibility and creative genius. Just as frankly they explained the corresponding rewards—for those who remained in subordinate positions and those who advanced to executive rank. Obviously, "Vocational Guidance in Engineering Lines" was not designed for use as a textbook in vocational guidance classes, nor as a manual for counselors.

It was valuable supplementary material, however, collateral reading for students who were seriously considering engineering careers, and for counselors who advised them. It left the field of scientific testing (aptitude tests, intelligence tests, etc.) to experts in that field. Its principal value lay in its revelation of the great scope of engineering, the major technical divisions and the hundreds of special fields which lie within these major groups or cut across two or more of them. Such a book enables the student who, in aptitude tests, has shown fitness for an engineering career to get a comprehensive view of the structure of the profession and on this to base his more detailed investigation of branches and fields which interest him deeply.

Engineers' Council for Professional Development has prepared pamphlet material which should be available to potential engineers through every public school library. The latest of its publications is "Engineering A Creative Profession". All the Council's guidance material is comparable to the excellent publications of American Dental Society and American Bar Association. The Dental Society's concise but comprehensive guidance booklet, "Dentistry as a Profession", was reviewed in PROFESSIONAL ENGINEER, (Vol. 32, No. 3) September, 1947 issue, and the Bar Association's two detailed handbooks, "Look Before You Leap" and "Getting Started", were discussed in the December, 1947 issue.

In the Manuals of Practice published by leading engineering societies

are chapters which would be valuable collateral reading in guidance courses if they were or could be made available to high school counselors. A bibliography of such material would be useful to guidance experts in colleges and to high school counselors in cities which have technical libraries in which these publications are accessible to teachers and students. The Vocational Guidance Committee of American Association of Engineers has considered compiling such a bibliography; unless, however, the particular chapters could be reprinted and made available at minor cost to the thousands of high schools in towns and small cities, the cost of this project in time and money would be out of proportion to the number of schools and other agencies interested in guidance who might benefit.

Chapters of great potential value to prospective engineers are found in a number of books written by professors of engineering, but not sponsored by schools or societies. There are chapters, for instance, in "Business, Legal, and Ethical Phases of Engineering" by D. T. Canfield and J. H. Bowman which would be excellent guidance material. The greater part of the material in the book, however, is over the heads of high school students and college freshmen, the level at which guidance is most needed. Few high schools have a library budget that permits them to buy books whose value lies in a single chapter or an appendix. Perhaps the most practical independent publication of this kind is "The Engineering Profession," a book written by Dr. Theodore Jesse Hoover and Dr. John Charles Lounsbury Fish of Stanford University. It contains most inspiring definitions of "engineering" and "engineer" which follow:

"An engineer is a person who is qualified by aptitude and education to solve engineering problems and direct engineering activities."

"Engineering is the professional and systematic application of science to the efficient utilization of natural resources to produce wealth."

The authors challenge those who would enter engineering with this statement of the profession's place in the social and economic order:

"In the industrial world the engineer is the custodian of the world's fund of technical knowledge, the buffer between labor and capital, the friend of the public in its relations to labor and capital, the Cerberus on guard at the store of natural resources, and the dreamer of dreams, most of which he makes come true. In the social world the engineer spreads comfort, convenience, freedom from drudgery, and protection of health; and marches abreast of the scientist and the physician seeking the impartial answer; and thus through accomplishment and example advances civilization.

"An engineer is a person who is qualified by aptitude and education to solve engineering problems and direct engineering activities."

Throughout the country organizations of business and professional men are cooperating with high school counselors, in annual vocational conferences in which engineers, doctors, lawyers, architects, advertising agency executives, and representatives of other professions, and heads of local business and industrial organizations talk with interested groups of students on the requirements for success in each of these many vocations and of the range of income that may be expected and the probable opportunities for finding employment in each field. Sometimes these conferences are initiated by counselors in the schools, sometimes by civic organizations. The Chicago Technical Societies Council held such a conference in Chicago last Spring. It was well attended, but the mass movement of students to a particular section where a well known actor spoke indicated not an overwhelming interest in the stage as a career but the personal interest of the crowd in that speaker. The conference is a valuable supplement to other guidance activities but is not often determinative.

Despite the progress that has been made in the technique of vocational guidance, the development of relatively dependable intelligence and aptitude tests and practical textbooks and collateral reading, there is still a staggering annual loss from ineffective guidance. This loss is apparent in the great number of students who, entering engineering school without aptitude for the work fail in the first or second year, and in the large number of students who are able to master assignments and pass courses but who are temperamentally or otherwise unfitted for successful practice of engineering in anything but a routine capacity.

Because this country's constitution underwrites individual liberty—freedom of choice—it is unthinkable that any agency of its government should ever impose restraints on an individual's right to choose a vocation. There can be no arbitrary assignment of workers to the trades, the professions, or commerce on basis of aptitude tests. This was apparent in the general reaction to the proposed "Technological Mobilization Act" during and immediately after World War II. Any student who can meet entrance requirements, pay his tuition, and pass exams on courses can enter upon an engineering career. He may, because of his unfitness for professional engineering spend his life over a drawing board or in some other subprofessional activity. Free choice of a vocation is his inalienable right. Freedom is more important to Americans than the kind of efficiency induced by Hitler's "Technological Mobilization".

Even though an engineering graduate discovers, after he has spent a great deal of time and money on training, that he can never achieve satisfactory standing or compensation in engineering, his training may provide invaluable background for some other vocation—journalism, sales, advertising—for which he has a natural aptitude. Certainly, in any endeavor,

the engineering approach to problems, and engineering's insistence on facts, will be an asset. Technical knowledge equips any citizen to appraise governmental activities—inasmuch as technology is a factor in local, state, and national projects of enormous importance—and to provide a type of leadership that every community needs. Time and money spent on engineering training are not wasted, except, perhaps on those men who stay in the lower ranks where trade school training would be adequate preparation, and these men usually lack some essential qualification—initiative, energy, determination—and would be duds in any vocation.

Society has an investment in its Engineers and Engineering Schools, and therefore a program of vocational guidance directed toward junior and senior high schools has been recommended. It is imperative that a young man have as much information as possible about the profession before he decides to adopt engineering as a career.

In order to get the greatest possible return on the nation's investment in engineering schools it is necessary to provide guidance for all who indicate an interest in such training. The schools, the engineering societies, and members of the profession should do all in their power to provide full information and real understanding concerning the nature of engineering, the mode of life dictated by some of its branches, the opportunities afforded by an engineering career, and the obligation of service which it lays upon members of the profession. Public school guidance departments and the societies must offset in some degree the rather unrealistic impressions created in the minds of the young by drama, fiction, movies, the stage, and even the comic books. The engineer is almost always the hero—very, very rarely the villain of the piece. He is pictured in virile, exciting, heroic activities. There is little in fiction to suggest the infinite amount of tedious, unromantic planning, designing and computation back of the heroism. Counselors in universities and secondary schools and the societies should counteract these false impressions by wide dissemination of the facts about the profession and they should help individuals to appraise their own fitness for engineering careers.

It is not the function of guidance to regulate the market for engineering services, to try to maintain a favorable relationship between supply and demand. Such a situation existed at the end of World War II, when a great many young men who would not normally have been able to finance a college education, had that opportunity through the "GI Bill of Rights". Tremendous numbers of them chose engineering and entered school between 1946 and 1948—many of them because they wanted an active rather than a sedentary job, and others because they had served in a branch of the army or navy where they had technological experience of a limited sort. The engineering schools could absorb them only with great difficulty and engineering educators were aghast when they estimated what they conscientiously believed would be an appalling surplus of engineers within a period

of five or six years. Popular journals picked up the reports in technical journals and parents and high school counselors got a very strong impression that because of over-supply young engineers faced a rather doubtful future.

In March, 1950, the Department of Labor in Washington made an occupational outlook survey regarding employment for engineers. This too was widely circulated among vocational advisers, through whom it filtered down to parents and potential students It indicated that industry would perhaps employ 450,000 engineers by 1960, but that so many engineering students were being graduated that many graduates would be unable to get engineering jobs.

Henry J. Taylor, noted journalist, economist, and author, in a series of radio talks sponsored by General Motors in November, 1951, discussed both these dire prophecies and voiced his alarm over the decreased enrollment in engineering schools and the shortage of engineers. He noted that the number of engineering graduates in June, 1951, was only about 38,000, a tremendous drop from the 50,000 graduated in 1949 and again in 1950. He said that it was most necessary to correct the "false but widespread impression that the country has been oversupplied with engineers—that engineering is an overcrowded calling." He quoted a survey to show that there were 80,000 jobs which needed to be filled by engineers when the 38,000 were graduated in June. "By and large, engineering is perhaps the best-paying major profession in our land, and it has a world wide market," he said, and spoke at length of the large numbers of industrial managers who had engineering training. Mr. Taylor cited statistics to prove that great opportunities are afforded those with engineering training; throughout the series of programs he did a fine job of recruiting—but what Mr. Taylor did cannot be classified as "vocational guidance".

Real vocational guidance does not stampede hordes of students into the schools by dazzling promises of opportunities and rewards; neither does it use sensational methods to discourage large enrollments for fear that too large an output from the schools will lower salaries of established members of the profession. Year by year counselors are becoming more skilled in the use of their own special tools—the testing programs which enable them to help students appraise their own fitness for engineering careers. Counselors in secondary schools and in the universities should be given the best possible materials by engineering societies to enable them to give a true picture of engineering to potential engineering students.

Members of the engineering profession believe that it is more closely akin to the arts than other professions; first, because it requires the maximum of natural aptitude and of liking for the work in order to offset other factors; second, because it demands, like the arts, an almost selfless consecration to the job; and third, because out of the hundreds who faithfully devote themselves to their tasks, only a few are destined to receive any significant reward in either money or fame.

Corkscrew Swamp

By ERNEST A. TAYLOR,
Construction Engineer, Member A.A.E.

1952 was the year and it was in June. The author had been through a very bitter sickness and was convalescing when he was asked to lead a small party for a week's camping into the Everglades. The Big Cypress Swamp was substituted and when the party met at Bonita Springs, the State Wildlife Officer changed over to Corkscrew Swamp. This Swamp is a part of the great Corkscrew Slough in northern Collier County. It lies ten miles east from Bonita Springs and is from ten to fifteen miles north and south, and from three to five miles east to west.

Above: The Author, Ernest A. Taylor

Above: Representatives from various Civic Groups Planning the Corkscrew Project.

The beautiful cypress in the background

The success of this project was assured from the start. The writer is a "working" Christian and this project came as a result of prayer. Wonder how many readers will understand this statement? Yet it is true.

The Jeep is the only vehicle to successfully negotiate this vast region of prairie and swamp lands which varies from smooth sailing to rather rough going through which all four wheels are engaged and water sometimes lying on the floor boards. We were billeted in a cabin erected by a federal judge and each day our course took us into a different portion of this magnificent and mysterious Swamp with its very dense growth of giant Bald Cypress trees, more dense underbrush with vines too tough to scratch with the ordinary pocket knife and a sheath knife can chop them. The vines reach to the very tops of these tall trees forming, with their branches, a heavy canopy which at times prevents sunshine from reaching the floor of the Swamp. The attendant floral and animal population is varied and generous. The air plants and rare orchids, the large and grace-

fully spreading ferns, the wild flowers along with the several types of mammals and reptiles make one feel that Alice missed the boat by not knowing about Corkscrew Swamp. Black bear, panther, wildcat, wild hog, otter, raccoon, opossum, skunk, rats and mice, many kinds of snakes, the alligator, many turtles, fish, frogs, crayfish, salamanders and the whole gamut of wading birds and shore birds along with song and game birds all seemingly live in this region. Deer, wild turkey, rabbits prefer the open country in the prairies. And this party saw most all of these. We feared none and they did not attempt to molest us. There was not a gun in the group.

Leaving Bonita Springs, we followed the MULE PEN trail. This trail follows no land lines; rather it follows the footprints of a group of timber mules which broke camp one night and scattered to places unknown and the natives followed these prints and the route is scenic and gets one into just about every kind of condition there and some of the stretches take you into deep water, dense forest, open prairie and deep white (ball-bearing) sand which the ordinary automobile cannot pass through. There there are several sections of land owned privately for cattle and the wire fences have gaps in them, which must be opened and then secured after passing through. Some gaps are padlocked and the officer carries the key. Human habitations are unknown except for an occasional hunting cabin. So it is not hard to understand the remoteness of this area. And being unspoiled by the selfishness of man, the entire area is virgin just as it was left when God, in His infinite wisdom, saw fit to create such a wonderful and beautiful region where everything grows lush and the Balance in Nature is perfect. The mosquito was not to be felt for the natural enemies were on constant alert and they were legion. The Seminole Indians and the natives say the foot of the white man has hardly ever penetrated this Swamp.

Since the Corkscrew Swamp is remote, it has grown very dense and there are no trails or paths. Our only means of access was in following animal trails and these were often difficult to follow, the water sometimes waist deep and it was often necessary to climb over fallen trees, killed by the Strangler fig vine, and sometimes crawling under deep brush. But occasionally we reached an opening, due to the formation of a lake (pond) made by the alligator, where we could catch some kodak shots. The lush swamp lillies, the flowering vines, the blooming plants offset the glory of a paradise we only hear about but seldom ever get to see.

There are a few giant Bald Cypress trees which will reach more than 125 feet while the commercial stumpage will measure to 80 feet to the first branch and often the trees will average from 40′ to 60′ with girths at four feet above the ground measuring three to five feet in diameter. The largest of these giants will measure up to 8′ in diameter. There are some hard woods at scattered areas and on the "islands" there will be seen some majestic pines of great dimensions with Cabal (Cabbage) Palms in profusion. The

wild fruits and berries and edible roots, along with cabbage palmetto are to be found frequently. A human should never go hungry in that region. And for water, we go to an alligator pound and scratch a small basin and then watch the water slowly seep into the crater. Then finding a grass stem, the ends are snipped off, making a quill. The water is palatable and cool.

It falls to the alligator to keep the Swamp alive. This great saurian digs a cove, or a pond or a "nursery for the young" and always deep enough to tap the ground water levels. The crayfish and water newts keep the flow in motion and during the "dry" season when the flat areas are dried up, the minnows and amphibians gravitate to these ponds to remain until the rains come and when they reach out again to work. The roots of cypress trees reach down deep, for they must have water. The knees of these monarchs are the breathing elements. When removed for commercial purposes, these trees will not function, some will slowly die. In this area, no knees have been removed and they won't be if the purpose of this project is reached.

A beautiful forest of giant Bald Cypress

This great forest of giant Bald Cypress is owned by a New York lumber concern. They have been harvesting this timber for about a year and the yield is far greater than the original cruise estimate revealed. A few trees show signs of fungus, but by and large, the timber is prime in every way. After making this TREK and we returned to our homes, the notes were written into a 67-page (double spaced) manuscript in very concise detail and the films were processed into slides in color. This author has shown the slides to many conservation groups, civic clubs, Audubon groups, schools and other groups. Invitations are still received. This illustrated lecture is given without charge other than the transportation and maintenance expenses, which are small compared to the educational value of the program. The stream of complimentary letters reaching the Game and Fresh Water Fish Commission, at Tallahassee, caused some correspondence to bring results. And a Swamp side meeting at the rookery site brought representatives of the Game Commission, the National Audubon Society, the Everglades Wonder Garden and the writer to discuss with the Lumber Company representatives our program. This meeting was held in January, 1954 and after a penetration deep into the Swamp and a box lunch with chicken, ham, rolls, fruit, cake, sandwiches and hot coffee eaten around a blazing fire, we broke camp and went home. Then in March a second meeting at the Hillsborough Hotel brought all these same groups together with other State groups, the Park and Forestry Departments, the Associated Garden Clubs and the Associated Woman's Clubs, the Associated Press, the Save the Redwoods League and the Tampa University with this writer together to discuss the program further. Mr. O. E. Frye, Jr., Assistant Director of the Game Commission, was

APPRECIATION

One of the most neglected virtues of our daily existence is appreciation. Somehow, we neglect to praise Junior when he brings home a good report card, and we fail to encourage Mary when she first succeeds in cake baking. Nothing pleases children more than this kind of parental interest and approval.

The next time you enjoy filet mignon at the club, send word to the chef that it was excellently prepared, and when a tired salesgirl shows you unusual courtesy, please tell her so.

Every minister, lecturer and public speaker knows the discouragement of pouring himself out to an audience and not receiving a single ripple of appreciative comment. What applies to professionals applies doubly to workers in offices, shops and factories. In our working relations we should never forget that all of our associates are human beings who hunger for appreciation. It is the legal tender that all souls enjoy.

Try leaving a friendly trail of little sparks of gratitude on your daily trips. You will be surprised how they will set small flames of friendship that will be rosebeacons on your next visit.

Remember appreciation, whether of nature, or books, or art, or service, is veneration of the worthy efforts of our fellow men.

named Executive Secretary and Mr. John H. Baker, President of the National Audubon Society, as Chairman of the Finance Committee and a letter given an option to purchase 160 acres of the best of this timber was read. Within 30 days, this option was executed and after another survey, we learned that a total of more than 2,000 acres of this magnificent Corkscrew Swamp could be bought for the sum of $145,000.00.

A brochure is nearing completion and when complete, it will be distributed and will show the Swamp in color pictures and a most significant manuscript describing the Swamp and how it will be developed into a unique State Park and Monument with elevated boardwalks penetrating the remote areas of scenic value for the artists, the naturalists, the kodak fan and the host of other folks who are eager to witness such splendor as may only be observed in the Corkscrew Swamp.

Florida is making great strides in commerce, agriculture, industry, mining, timber and other development. In the region of Corkscrew Swamp there are to be seen the fast growing large scale scientific agriculture, cattle and poultry institutions. Relaxation is a close second and the attendance of patrons to other public parks indicates people are still in search for the unusual. With Nature as the dresser of the land, Corkscrew Swamp should find itself a new adventure, rich in scenic value, great aesthetic and educational lore and it will be the hope of this writer to see the final fruition with the ultimate dedication to a new kind of recreation.

Horatio Alger Story

This interesting story of a well-known engineer and a member of A.A.E., is reprinted in Professional Engineer by Courtesy of "Consulting Engineer," which carried the story in its October 1954 issue.

MICHAEL BAKER, JR., at the age of 42, is the head of one of the country's largest and fastest growing consulting organizations. Despite his youth, he has established an international reputation for tackling any and all kinds of engineering jobs and fulfilling his contracts with professional polish. The versatility of his organization and its ability to "turn on a dime" is an important factor in his success.

Baker had tough sledding when he first hung out his consulting shingle 14 years ago at the age of 28. His youthfulness was against him from the start, but under the pressure of the war emergency and the critical shortage of engineers, he finally was given an opportunity to show what he could do.

A subcontract from a Pittsburgh company for a hurry-up survey of a defense property near Paducah, Kentucky was handled so quickly and efficiently by Baker's crews, that he drew the attention of the U. S. Corps of Engineers in Washington and in the District Offices. Before long, Michael Baker, Jr., Inc., was a full-blown "war baby" in defense work.

During the war, he had built up an organization of competent engineers with a proven record of accomplishment. When the war ended and Baker had to sink or swim in the stream of competition, he decided to go out and find new opportunities for his talent. What he lacked in years and experience, he made up in hustle and persistence, and, more important, performance, once he got the job.

For example, his tenacity finally convinced state highway planners and the ultra-conservative banks and investment houses that issue the bonds and put up the money, that his firm had the ability and know-how necessary for master planning, design, and supervision of construction. Currently, Baker is consultant design engineer on about a dozen superhighway and toll road projects, including a portion of the northeast extension of the Pennsylvania Turnpike; the Circumferential Expressway circling Washington, D. C.; and the $20 million Fort Pitt tunnel which will complete Pittsburgh's Parkway West. Baker's firm is recognized as one of the top highway planners in the country.

The recognition is overdue. The facts are that in 14 years Baker has built an organization of over 900 people –about 600 of whom are engineers—that in 1954 will do a gross billing of almost $9 million. He has continued to diversify his "war baby" consulting firm into many new fields and enterprises without losing a stride. Every job he has done has been completed to the satisfaction of the client and within the terms of the original contract. His projects range from the Nike rocket installations

around Pittsburgh to responsibility for the irrigation and agricultural developments in Saudi Arabia and Jordan.

Baker has won recognition outside his profession, too. Earlier this year, he received the 1954 Horatio Alger Award for outstanding achievement and last month he was elected to the national Young President's Organization.

In his second floor offices in the Baker Building in Rochester, Pa., Mike Baker often reflects on the difficulties he had to overcome because of his youth. "I just wish that the engineering community would be a little less conservative and a little more human. I wish that it would lean a bit more towards extending genuine help and encouragement to our young men who have shown ability, talent, and enthusiasm. There are enough legitimate obstacles in competing in the professional world without the added burden of answering the old bromide as 'you're too young' or 'you don't have enough experience' or 'you've never done this work before'.

"It is encouraging to note that some of the city fathers; municipal, state, and federal officials; officers of banks and investment houses; are realizing that a consulting engineer's prestige or reputation, carried along after that man is dead or has retired and others are running his business is no longer sufficient justification for awarding contracts or authorizing financial commitments. Every consulting engineering firm should be evaluated in terms of its preseut staff and their abilities to produce.

"There are many, many opportunities in this country that need only the initiative, talent, and enterprise of fresh, young blood to uncover and exploit the possibilities. Lip service is not enough. Our engineering firms, engineering societies, public and private officials must give concrete evidence that they are prepared to help give recognition, jobs, and encouragement to the up-an-coming consultants if this development is to continue to grow.

"As for Michael Baker, Jr., Inc., we are going to keep on showing that we have faith in the young people in our organization by giving them the opportunity to try new ideas, go after new projects, and express their potential to the maximum. Our day-to-day activities are our best expression of faith in the engineering profession, its ethics, and public responsibilities."

And Baker concludes, "there is one advantage in fighting the age handicap, time is on your side!"

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News Items

Chicago Chapter

One of the best attended meetings of the Chicago Chapter was held in April when the members paid tribute to Herman A. Wagner whose birthday falls on April 17. The members arranged to have the eminent photographer, Lionel Heymann, take a photograph of Mr. Wagner. The picture is a very fine likeness of the man, who has so generously given of his time and talents to the work of the Association for so many years. The photographs were beautifully framed by the chapter and one of them presented to National Headquarters; the other to Mr. Wagner for his personal use.

Another meeting which was of special interest to the members, and proved conclusively that engineers CAN get up on their feet and express themselves, was the Panel Discussion held in May.

Up for discussion was this controversial subject "What is necessary to get the engineer out of the 'back office' location in industry and business'—or—"What keeps the engineer from climbing the Executive ladder?"

The able moderator was William H. Boyce. Louis J. Lucas, Richard L. Gambert, David W. Dunning, and Herbert G. Bodie constituted the panel. They handled their subject exceptionally well and the open discussion which followed was helpful as well as interesting. Comments of the ladies proved that women are acquainted with the business problems of the engineer, and not unaccustomed to speaking. Surprising, indeed, is the hidden talent of the engineer! He needs more meetings of this kind—more opportunities to "get up and express himself."

Another extremely interesting meeting was held on June 18, when Peter L. Loewe, vice president Brook Motor Corporation and past president of the Chicago Chapter, gave an illustrated talk on Latin America. Having recently returned from an extensive trip including Cuba, Puerto Rico, Venezuela, Panama, Nicaragua and Mexico, Mr. Loewe had some last-minute information for the engineers on traveling through these interesting countries—"Burton Holmes" fashion.

After the address the members enjoyed the film "Men of Science," presenting M.I.T.'s contributions to industry and humanity. The film was shown through the courtesy of Mr. Loewe, whose alma mater is M.I.T.

The chapter has held many other fine meetings throughout the year, and has a rather ambitious program planned for the new year.

Arthur L. Christy heads the group as President. Theodore F. Lacey is vice president and B. E. Krieg, secretary. Robert S. Hale is treasurer. William Collatz, Peter L. Loewe and Walter R. Kostner serve as directors.

The Engineers hold regular monthly dinner meetings and the ladies are always invited. Social hour precedes the dinner, and there is always time to chat and get acquainted. Engineer-members in Chicago and environs are cordially invited to attend and bring their friends.

Worcester Junior College

The Worcester Junior College, chapter of A.A.E., has a membership of about 50 student engineers. Ronald R. Duclos is President; Fred Novak is Vice President; Robert Laverdiere is Treasurer and David Brosnahan, Secretary. The group had a very interesting and successful year and after a good vacation, we hope the engineers will all return to carry on the good work of the group.

Friendship without self-interest is one of the rare and beautiful things of life.

The society's gold medal will be presented at this session to Dr. Erwin F. Lowry, Manager of the Lighting Engineering Laboratories, Sylvania Electric Products, Inc., Salem, Mass.

Theodore A. Polansky

Theodore Arthur Polansky, life member of A.S.C.E., and Senior Member of A.A.E. since 1925, was recently written up in the "Texas Engineer," journal of the Texas Section, A.S.C.E. Mr. Polansky was at one time an active member of the Huntington A.A.E. Chapter when he was sales manager and stockholder in the Union Concrete Pipe Company.

Members who attended the Huntington convention in 1931 will, of course, remember Ted as one of the chapter's charming hosts, who with his lovely wife Carlotta, did their full share to entertain the visiting engineers and their wives.

Mr. Polansky attended Texas A & M College and in 1908 he received his degree, Bachelor of Science in Civil Engineering. In 1913 he attended Columbia University for a special course in Highway Engineering and there in the classroom sat side by side with his former A & M Professor, J. C. Nagle, who also joined A.A.E. and was a most active member until his death.

In 1938, Mr. Polansky sold his interests in the Union Concrete Pipe Company and moved to Houston, Texas, to become Sales Manager and later Manager of the Gulf Concrete Pipe Company, which position he still holds.

Gurdon Montague Butler Honored

Dr. Gurdon M. Butler, dean emeritus of the College of Engineering at the University of Arizona, was recently given a certificate of honorary membership in the American Institute of Architects. Dean Butler is the 44th American named to the honorary status in the national organization.

He joins such names on the roll of honor as former President Herbert Hoover, Louis Mumford, noted city planner; Robert Moses, New York City Planning expert; and John D. Rockefeller, Jr.

Dean Butler has been a member of the American Association of Engineers almost since its inception. Throughout the years he has been a staunch supporter of the aims and objectives of the Association.

Good Public Relations

Dr. Gustav Egloff, director of research for Universal Oil Products Company, Chicago, has been elected an honorary fellow of the Royal Society of Edinburgh, one of four prominent persons not British subjects who were so honored in 1953.

Dr. Egloff is one of the world's outstanding petroleum scientists and has been decorated by more than 34 foreign countries for his accomplishments in the petroleum industry. He has studied oil cracking for more than 35 years and has been awarded more than 300 patents by the United States and foreign government relating to the processing of petroleum, coal, shale oil, and chemical derivatives of hydrocarbons.

In reporting a visit Dr. Egloff made to Tulsa, Okla., early in 1952, Andrew M. Rowley in his "chatty" column headed "Person—Oil—ities" in the Tulsa Tribune, spared no words in complimenting the Doctor for his friendliness and courtesies to reporters. "Dr. Egloff is a real human being," said Mr. Rowley. "One of the most democratic persons I ever met. He has been a lifesaver for thousands of reporters throughout the nation who were floundering around at oil meetings trying to find a lead and unable to comprehend what was being discussed because of the highly technical terms being used.

"He has never been so busy he did not take time out to sit with a newspaperman or group of members of the Fourth Estate and tell them in ham and egg English the highlights of the meeting. Newspapermen throughout the country have come to know that when Dr. Egloff is at a meeting, they will be able to get a good story about it and about other important developments in the petroleum industry."

An excellent job of public relations, Dr. Egloff!

Days don't just pass. They make us or spoil us, or leave us untouched.

Books of Interest for Engineers

A Treatise on Electricity and Magnetism, by James Clerk Maxwell, Unabridged Third Edition, two volumes bound as one, Vol. I. Dover Publications, Inc. $4.95.

To many authorities the author is the greatest theoretical physicist of the nineteenth century. His book therefore is of interest to those in the field. Until recently, readers have had to pay $15.00 a copy for this 1100-page work. The new unabridged edition is an exceptional buy.

Materials of Construction, by M. O. Withey, Emeritus Dean-Coll. of Engrg., Univ. of Wis., and G. W. Washa, Prof., M.E.C.H., Univ. of Wis. John Wiley & Sons, $9.00.

Completely up-to-date, this book reviews the most recently determined methods and the latest statistical data concerning the sources, manufacture and fabrication of the principal materials of construction. Also included is the best available knowledge on wrought iron, alloy steels, non-ferrous metals, fatigue of materials, effect on mechanical work on the properties of steel, heat treatment of steel, and the effects of temperature on the properties of metals. Well illustrated.

Conveyors and Related Equipment, by Wilbur G. Hudson, M.E., A.S.M.E. Third edition. John Wiley & Sons. $9.00.

This new edition of a well-known and widely useful book is the only current volume on materials handling and related equipment which thoroughly meets the needs of those interested in the field. Much new material has been included and many photographs also typical problems and their solutions.

Electrical Elements of Power Transmission Lines, by Herbert Bristol Dwight, author of Transmission Line Formulas. The Macmillan Company, New York. $4.25.

An up-to-date treatment of the text is given this book. A large number of problems are included in order to give practice in solving the types of calculation described. Only an elementary knowledge of trigonometry and calculus is assumed in this book.

Water Supply and Waste-Water Disposal, by Gordon Maskew Fair, Gordon McKay, Prof., Sanitary Engineering, Harvard University, and John Charles Geyer, Prof., Sanitary Engineering, The Johns Hopkins University. John Wiley & Sons. $15.00.

In this book the authors have given the profession an excellent reference work on the subject of water supply. The book sets forth many of the important advances which reduce water sanitation to an orderly process of calculation. Material is well classified according to principles or unit operations. The first part of the text deals with the collection and distribution of water and the collection and removal of waste water. The balance of the book deals with the treatment of water and waste water. Valuable tables that simplify computations or summarize basic information of a physical or chemical nature are included in the appendix.

Highway Engineering, by Laurence I. Hewes, Late Ch., Western Hdq., U.S. Bur. P.R., and Clarkson H. Oglesby, Prof., C.E., Stanford Univ. John Wiley & Sons. $8.00.

In this book the authors have concentrated on fundamentals. The principles of each topic are lucidly described, and practice and terminology are explained in terms of these principles. Greater stress is placed on engineering design and the principles that underlie it than on actual construction practices. Sections on highway economy and finance, drainage, rights of way, and traffic engineering, are valuable.

Flow and Fan, by C. Harold Berry, Gordon McKay, Prof., M.E., Harvard University. The Industrial Press. $4.00.

The author has based his presentation on lecture notes compiled for a course offered at Harvard to various groups of students in engineering or hygiene fields who are interested in ventilation, either to reduce industrial hazards or to promote comfort. An excellent textbook and ready reference.

Engineering Thermodynamics, by Paul J. Kiefer, Prof., M.E., U.S. Naval Postgraduate School, Gilbert F. Kinney, Prof., Chem., Engrg., U.S. Naval Postgraduate School, and Milton C. Stuart, Prof., M.E., Lehigh Univ. John Wiley & Sons, Inc. $7.75.

This second edition incorporates a number of distinctive features which set it apart from current engineering thermodynamics texts. The material has been completely rewritten to provide a concise and effective presentation of the basic material specifically designed to serve the requirements of the engineer.

Successful Commercial Chemical Development, by H. M. Corley, Editor-in-Chief. John Wiley & Sons. $7.75.

This is a group effort, authorized and sponsored by the Commercial Chemical Development Association, representing the thinking of many people. It documents in one volume the most enlightened, present-day knowledge of the important principles of every essential step, as well as the pitfalls to be avoided in selecting promising new chemicals and rapidly developing them to the stage of economic importance.

Chemical Business Handbook, by John H. Perry, Ph.D., Editor, Chemical Engineers' Handbook. McGraw-Hill Book Co., Inc. $17.00.

This excellent book is a "must" for chemical engineers, and the new edition is prepared by a staff of specialists, John H. Perry, Editor-in-Chief. It is truly the "bible" in its field. A wealth of information on methods, operation, and fundamentals is contained between the covers of this outstanding book. The presentation of business subjects, procedures, tables, data, forms for records and control, and so forth, is excellent.

Water Conditioning for Industry, by Sheppard T. Powell, Consulting Engineer. First edition. McGraw-Hill Book Co., Inc. $9.00.

The author has arranged his material to indicate the progressive improvement in water quality obtainable, from simple removal of suspended solids to systems involving complex physico-chemical principles.

The comprehensive treatment includes a review of the latest types of evaporation and deaeration equipment, treatment of water in recirculating systems, silica removal, and acidizing of equipment to remove deposits. A practical water-conditioning guide for plant and process engineers.

Simplified Site Engineering for Architects and Builders, by Harry Parker, M.S., Prof. of Arch. Construction, and John W. MacGuire, B. Arch., Asst. Prof. of Arch. Engineering—both of School of Fine Arts, University of Pennsylvania. John Wiley & Sons. $5.00.

The authors are well aware that many of the problems relating to site engineering demand the services of a qualified engineer. There are, however, many problems of this nature that arise constantly that may be readily solved by the architect or builder, and the purpose of this book is to provide the knowledge for such problems. Numerous examples are given. The book serves as a review and refresher, explains simple methods for using surveying instruments, and so forth.

Feedback Control Systems, by Gilbert Howard Fett, Prof. of Elec. Engrg., University of Illinois. Prentice-Hall, Inc. $10.00.

This book provides a basic understanding of feedback control systems, and the tools and techniques required to solve the newer problems in the field. There are many outstanding features included to bring the book strictly up to date. An excellent textbook for the advanced engineering student and the practicing engineer in industry.

Thermodynamics, by Franklin P. Durham, University of Colorado. Prentice-Hall, Inc. $7.35.

The author has endeavored to give students a textbook on thermodynamics which will be more readily understood, and it would appear that he has accomplished his goal. The book is well-written, illustrated and indexed. The appendix contains valuable tables and symbols.

Hugh Roy Cullen, A Story of American Opportunity, by Ed Kilman and Theon Wright. Prentice-Hall, Inc. $4.00.

Here is an interesting story of American opportunities, the life of a Texas Oil Titan, one of the world's wealthiest and most individualistic men, still going strong at 73. "Pitch-in-and-perform" was his creed, and he explains why he overcame many of the obstacles in his path throughout his busy life. A book you will enjoy reading.

Nickel in Iron and Steel, by A. M. Hall, Chief, Alloy Dev. Div., Battelle Memorial Institute. John Wiley & Sons, $10.00.

This is the second book in the new series of Alloys of Iron Monographs, and is the only work available which reviews and correlates all of the important published data on nickel as an alloying element in steel and cast iron. Corrosion and the welding of nickel steels are discussed in detail.

Welding for Engineers, by Harry Udin, Dept. of Metallurgy, Mass. Inst. of Tech., Edward R. Funk, Engineering Consultant, Goodyear Aircraft Corp., and John Wulff, Dept. of Metallurgy, Mass. Inst. of Tech. John Wiley & Sons. $7.50.

This book is devoted to the weld itself. It includes a thorough treatment of cold, hot pressure, and resistance welding, along with the permanent-electrode arc-welding and consumable-electrode processes. In addition to covering all the important welding processes in use today, the book presents valuable research data which may have an important bearing on future methods of welding.

Dictionary of Mathematical Sciences, Vol. II, English-German, by Leo Herland, Ph.D. Frederick Ungar Publishing Co. $4.50.

The first modern bilingual mathematics dictionary—in German-English and English-German — these volumes cover in addition to mathematics, such fields as mathematical logic, statistics, commercial arithmetic, physics, astronomy, etc. Numerous cross references and model usages are included far beyond the measure usually allotted them in technical dictionaries, which, of course, add to the usefulness of the work. Vol. 1, German-English, retails at $3.25.

Highway Research Board, Proceedings of the Thirty-Third Annual Meeting, by Fred Burggraf, Director, and Walter J. Miller, Editor. National Research Council, Washington, D.C.

Linear Transient Analysis, by Ernst Weber, Prof., E.E., Polytechnic Inst. of Brooklyn. Second Edition. Vol. I. John Wiley & Sons. $7.50.

The book presents an extensive and critical review of classical and operational methods of analysis before entering upon the Laplace transform and Fourier integral methods. The fundamental exposition of each method is accompanied by many illustrations of the applications to practical circuit problems. The Laplace transform concept is introduced in Chapter 5. All in all a thorough treatment of the subject.

Wind Tunnel Testing, by Alan Pope, Supervisor, Exp. Aerodynamics Division, Sandia Corporation — Second Edition. John Wiley & Sons. $8.50.

The purpose of the second edition is twofold: To revise the data and procedures given in the first edition when changes are justified—and to extend the scope of the book to embrace new techniques. Chapters covering testing at

nearsonic, transonic, supersonic, and hypersonic velocities have been added, together with many photographs; also problems with answers.

Geographical Essays, by William Morris Davis. (Edited by Douglas Wilson Johnson). Dover Publications, Inc. $5.50.

Geographical Essays serves as a valuable "fresher." It is a book that could only have been written by an inspired teacher of teachers. For the scholar, historian, geologist, geographer, political economist, it offers an understanding of a much neglected, yet useful and interesting subject. Well illustrated.

Alternating-Current Machines, by A. F. Puchstein, Consult., E.E. and M.E., The Jeffrey Mfg. Co.; T. C. Lloyd, Ch. Engr., Robbins and Myers, Inc., and A. G. Conrad, Prof. E.E., Fellow of Timothy Dwight College, Yale Univ. Third edition. John Wiley & Sons. $8.50.

This new edition has been enlarged approximately 20 percent, and offers an unusually complete treatment of machine reactions based on modern practice. A widely used book which shows you clearly how to understand, test, predict, and calculate the behavior and performance of the most important classes of alternating current power machinery. Interesting problems have been included.

Tables of Offsets From Tangent To Parabolic Vertical Curves, by David S. Slatkin, C.E. Edward W. Sweetman. $5.00.

A useful book for those interested in the subject treated. Tables arranged in readable manner.

Statistical Analysis in Chemistry and the Chemical Industry, by Carl A. Bennett, Chief Statistician, General Electric Co., and Norman L. Franklin, Lecturer in Chem. Eng., University of Leeds, England.

This book is sponsored by the Committee on Applied Mathematical Statistics, The National Research Council. It gives the theoretical background and derivation of the analytical method together with computational procedures and presents enough of the mathematical theory underlying these methods to give a basis for judging the soundness of their application. Valuable references are included.

Strength and Resistance of Metals, John M. Lessells, Pres., Lessells and Associates, Inc. John Wiley & Sons, Inc. $10.00.

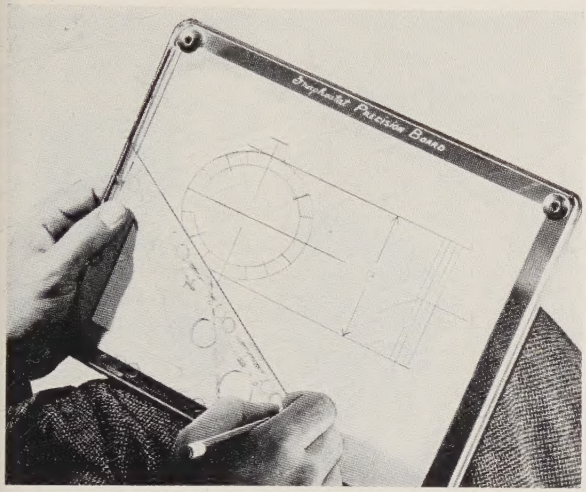
The authors intended this book to provide the senior and graduate student as well as the design engineer with information on the behavior of metals under stress as it has been revealed by numerous workers in this field. Most of the discussion centers around the behavior of steel, although some attention is given to non-ferrous alloys and cast iron. The subject matter involves the use of simple formulas in mechanics. Illustrative problems are included in the text.

Modern Physics for the Engineer, edited by Louis N. Ridenour, Vice Pres., International Telemeter Corporation. McGraw-Hill Book Co., Inc. $7.50.

Of interest to all technical men in the scientific or engineering fields. The author, as Visiting Professor of Engineering at U.C.L.A., has used a collection of his lectures in this treatise, thus giving the reader who has some degree of technical knowledge a brief account of some of the more interesting developments in the fundamental science underlying all engineering. Informational articles complete the text.

Modern Automotive Engine Repair, by John W. Vale, Jr., Mgr., of Education and Research, The Vale Technical Institute. Prentice-Hall Inc. $4.25.

A handy reference book on automobile engine repair, designed especially to help the car owner know a good mechanic when he sees one and to help that mechanic perform his job efficiently. Methods and equipment it describes are up-to-date. Written in clear and concise language, with charts and tables.



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